

Utilization of Functional Local Foods in Anemia Prevention: Collaboration with MAHSA University

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ABSTRACT

Anemia remains a significant public health problem, particularly among adolescent girls and women of reproductive age, owing to its adverse effects on health, productivity, and quality of life. One potential strategy for preventing anemia is the utilization of functional local foods that are rich in iron and other nutrients essential for hemoglobin formation. This community service program, titled "Empowerment of Midwifery Students through the Utilization of Functional Local Foods in Anemia Prevention: Collaboration with MAHSA University," aimed to enhance the knowledge and capacity of midwifery students regarding the use of functional local foods as a sustainable approach to anemia prevention. The program was implemented through a collaborative partnership between Universitas Galuh in Indonesia and MAHSA University in Malaysia. The activities were conducted in three main stages: program socialization, implementation, and monitoring and evaluation. The socialization stage focused on introducing the programs objectives, benefits, and implementation strategies to participants and stakeholders. The implementation stage included educational and counseling activities on anemia prevention and the utilization of functional local foods, interactive discussions, and knowledge-sharing sessions involving participants from both countries. The monitoring and evaluation stage was carried out to assess participants' understanding, participation, and the effectiveness of the program in improving knowledge and skills related to anemia prevention. A total of 40 participants were involved in the program, consisting of 36 midwifery students from Indonesia and four students from Malaysia. Educational materials focused on anemia prevention, the nutritional benefits of local food resources, and the utilization of functional local foods such as moringa leaves, spinach, legumes, and other locally available food sources. The results demonstrated an improvement in the participants' knowledge, understanding, and awareness of anemia prevention through the utilization of functional local foods. Participants also showed enhanced ability to identify nutritious local food resources and deliver health promotion messages to the community. Furthermore, international collaboration facilitated knowledge exchange, broadened participants' perspectives on public health approaches, and strengthened academic partnerships between the two institutions. In conclusion, the program successfully enhanced students' capacity as future healthcare professionals and health promotion agents while promoting the sustainable utilization of local food resources for anemia prevention. This program may serve as a model for community empowerment initiatives that integrate health education, local resource utilization, and international collaboration to improve public health outcomes.

Keywords: midwifery students, community service, international collaboration, health promotion.

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INTRODUCTION

Anemia is a significant global public health issue. According to the World Health Organization (WHO), anemia results in the loss of tens of millions of healthy life years worldwide. Approximately 30.7% of women aged 15–49 years are affected by anemia, and the **prevalence of anemia among adolescents (10–19 years)** is an important global indicator of adolescent nutritional status. In Indonesia, approximately 23% of adolescent girls aged 14–18 years suffer from anemia, indicating that iron intake and balanced nutritional consumption are inadequate in this population. Adolescent girls are at a higher risk of developing anemia than boys, with a risk approximately 1.73 times greater owing to biological factors and dietary habits. The high prevalence of anemia among adolescent girls contributes to the intergenerational cycle of malnutrition, as anemic adolescents are more likely to become anemic mothers, increasing the risk of low-birth-weight infants and stunted children.

The community service program titled “Empowerment of Midwifery Students through the Utilization of Functional Local Foods in Anemia Prevention: Collaboration with MAHSA University” was implemented through four main stages: socialization, implementation, health education, and evaluation and mentoring. Each stage was systematically designed to enhance the participants’ knowledge and skills regarding the utilization of functional local foods as a strategy for anemia prevention. This activity was the result of a collaborative partnership between Universitas Galuh and MAHSA University, Malaysia, emphasizing a participatory, educational, and sustainable approach to health. This international community service program was conducted through collaboration between a midwifery educational institution in Indonesia and MAHSA University, with the objective of strengthening midwifery students’ capacity to utilize functional local foods as an effective strategy for anemia prevention. The program was designed to integrate health education, utilization of local resources, student capacity building, and sustainable community empowerment. During the implementation process, various program components were successfully carried out, achieving outcomes that demonstrated positive impacts on both participants and the target community. The activities included educational sessions on anemia prevention, discussions on the nutritional benefits of functional local foods, interactive discussions, knowledge-sharing opportunities between Indonesian and Malaysian participants, and initiatives to strengthen the role of midwifery students as health promotion agents in the community. A total of 40 midwifery students participated in this community service program, comprising 36 students from Indonesia and four from Malaysia. The respondents’ characteristics included age, educational level, prior participation in community service activities, and baseline knowledge of anemia prevention and the utilization of

METHOD

The community service program titled “Empowerment of Midwifery Students through the Utilization of Functional Local Foods in Anemia Prevention: Collaboration with MAHSA University” was implemented through four main stages socialization, implementation, health education, and evaluation and mentoring. Each stage was systematically designed to enhance the participants’ knowledge and skills regarding the utilization of functional local foods as a strategy for preventing anemia. This activity was the result of a collaborative partnership between Universitas Galuh and MAHSA University, Malaysia, emphasizing a participatory, educational and sustainable approach. This international community service program was conducted through collaboration between a midwifery educational institution in Indonesia and MAHSA University, with the objective of strengthening midwifery students’ capacity to utilize functional local foods as an effective strategy for anemia prevention. The program was designed to integrate health education, utilization of local resources, student capacity building, and sustainable community empowerment. During the implementation process, various program components were successfully carried out, achieving outcomes that demonstrated positive effects on both the participants and the target community. The activities included educational sessions on anemia prevention, discussions on the nutritional benefits of functional local foods, interactive discussions, knowledge-sharing opportunities between Indonesian and Malaysian participants, and initiatives to strengthen the role of midwifery students as health promotion agents in the community. A total of 40 midwifery students participated in this community service program, comprising 36 students from Indonesia and four from Malaysia. The respondents’ characteristics included age, educational level, prior participation in community service activities, and baseline knowledge of anemia prevention and the utilization of functional local foods.

Table 1. Characteristics of the Study Respondents (n = 40)

Karakteristik	Kategori	Frekuensi (n)	Persentase (%)
Country of Origin	Indonesia	36	90,0
	Malaysia	4	10,0
Age Category	< 30 years	7	17,5
	30–39 years	14	35,0
	40–49 years	11	27,5
	≥ 50 years	8	20,0
Bidang Studi	Midwifery	36	90,0
	Nursing	4	10,0
Total		40	100,0

RESULTS AND DISCUSSION

The community service program employed the following implementation methods. In the initial stage, the program began with coordination and a needs assessment of the participants. The assessment revealed that most students had limited knowledge of the utilization of functional local foods for anemia prevention. Therefore, educational materials and training strategies were developed based on the identified needs of the participants.

The success of this program is expected to serve as a model for future community service initiatives that integrate education, research, and international collaboration to improve public health, particularly in the prevention of anemia through the utilization of locally functional foods.

1. Socialization Stage

Socialization activities were conducted with MAHSA University on March 3, 2026. This activity aimed to communicate the program's objectives, benefits, and implementation strategies to the target community and relevant stakeholders. During this stage, the role of MAHSA University as an international partner supporting the program was introduced. The socialization process was conducted through an online Zoom meeting involving representatives from MAHSA University. Interactive discussions were conducted regarding the implementation of program activities, including direct educational sessions, group discussions, and the development of engaging educational media materials. Initial agreements were established to ensure the active participation of students and international collaborators throughout the program's implementation.



Program Socialization with MAHSA University

2. Educational Session on Anemia and Functional Local Foods The activity began with an educational session on anemia among adolescent girls and women of reproductive age. The materials presented covered the causes of anemia, risk factors, impact of anemia on adolescent health, and prevention strategies through the consumption of nutritious foods and iron-rich local food sources. The session also provided education on the use of functional local foods as a strategy for anemia prevention. An interactive discussion was conducted with students from Indonesia and Malaysia. During the discussion, the participants exchanged knowledge and experiences regarding the use of local foods for anemia prevention. The discussion

revealed differences in the approaches of the two countries. In Malaysia, the utilization of local food resources as a specific strategy for anemia prevention is less commonly implemented, and there is no national program equivalent to the routine iron (Fe) tablet supplementation program that is widely promoted in Indonesia. These differences encouraged active dialogue among participants and facilitators, leading to a shared understanding and exchange of perspectives regarding the potential role of local food plants in improving nutritional status and preventing anemia in pregnant women. The session provided valuable opportunities for cross-cultural learning and strengthened participants' awareness of the importance of integrating locally available food resources into public health and nutrition interventions in their communities.



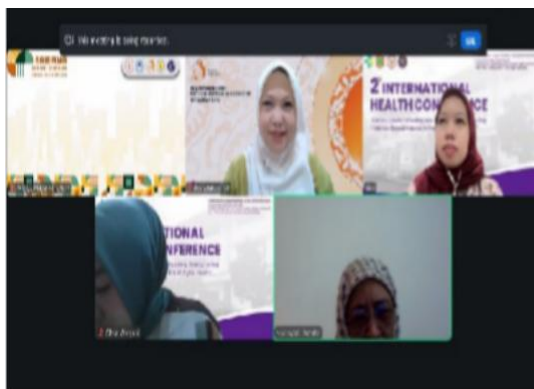
2. Training on the Utilization of Functional Local Foods

The activity consisted of an educational session on the use of local food crops as a strategy for anemia prevention. The training materials focused on various types of local foods commonly found in Indonesia, particularly in Ciamis Regency, which is rich in iron and other nutrients that support hemoglobin formation. Several local food plants have been introduced, including moringa leaves (*Moringa oleifera*) and spinach. Moringa leaves are known to contain high levels of iron, protein, vitamin A, and vitamin C, all of which play important roles in the prevention of anemia. In addition, moringa can be processed into various appealing food products such as moringa pudding. Spinach was also introduced as an easily accessible source of iron that can be incorporated into a variety of healthy dishes to support adequate nutritional intake among community members. Through this educational activity, participants gained a better understanding of the potential of local foods as accessible, affordable, and sustainable alternatives to support anemia prevention efforts. The session also highlighted the importance of utilizing locally available food resources to improve nutritional status and promote community health in a culturally appropriate and sustainable way.



4. Mentoring and Evaluation

At this stage, mentoring and evaluation activities were conducted to assess the implementation of the program and determine the extent to which the program objectives were achieved. The mentoring process was carried out continuously through discussions, consultations, and monitoring of students' application of knowledge related to the utilization of functional local foods for the prevention of anemia. The valuation was conducted on both the process and outcomes of the program. The process evaluation focused on the participants' level of participation, student engagement, and the effectiveness of the learning methods employed throughout the activities. Outcome evaluation, on the other hand, focused on improvements in students' knowledge, understanding, and skills related to anemia prevention through the utilization of locally available functional foods. The evaluation results indicated that the students experienced significant improvements in their understanding of anemia and were able to identify and apply various types of local foods with the potential to support anemia prevention. Additionally, students demonstrated enhanced communication and health education skills in delivering health-related information to the community. Overall, the mentoring and evaluation findings showed that the program was successfully implemented and achieved its intended objectives. The mentoring approach adopted throughout the program effectively strengthened students' capacities as health promotion agents and contributed to the sustainability of anemia prevention efforts through the utilization of locally available functional foods.



CONCLUSION

The community service program was successfully implemented and achieved its intended objectives. The program made a positive contribution to enhancing the knowledge, understanding, and awareness of midwifery students regarding the importance of anemia prevention through the utilization of nutrient rich functional local foods. Through educational activities and interactive discussions conducted in collaboration with MAHSA University, the participants gained broader insights into promotive and preventive approaches to addressing anemia, particularly among adolescent girls and women of reproductive age. The implementation of the program demonstrated that collaboration between educational institutions can strengthen the learning process, expand knowledge exchange, and enhance students' capacities as future healthcare professionals with competencies in nutrition education and community health promotion. Furthermore, the program successfully introduced the potential of local foods as an accessible, affordable, and culturally appropriate strategy for preventing anemia. Overall, the program had a positive impact on participants' capacity building and served as an important first step toward developing an international collaboration based student empowerment model to support community health improvement. Recommendations Based on the evaluation results of the program implementation, it is recommended that similar activities be developed continuously with a broader scope and a more practical approach to the program. In the next phase, the program could be enhanced through hands-on training in processing functional local foods that have the potential to support anemia prevention. This approach would enable participants to acquire not only theoretical knowledge but also practical skills in processing and utilizing locally available foods with high nutritional value. The program could also be expanded by involving community members, health volunteers, adolescent girls, and women of reproductive age as the primary target group. 11 In addition, collaboration with MAHSA University should be further strengthened through the development of joint community service programs, academic exchange activities, collaborative research, and preparation of educational materials and training modules that can be sustainably utilized by both institutions. Replication of the program in other regions with different community characteristics is also recommended to broaden its impact and improve the effectiveness of local food based anemia prevention strategies. With sustained partnerships and a multidisciplinary approach, this program is expected to serve as a model for international collaboration-based community service initiatives that contribute to community health improvement and strengthening human resource capacity in the health sector.

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